FIG. 1

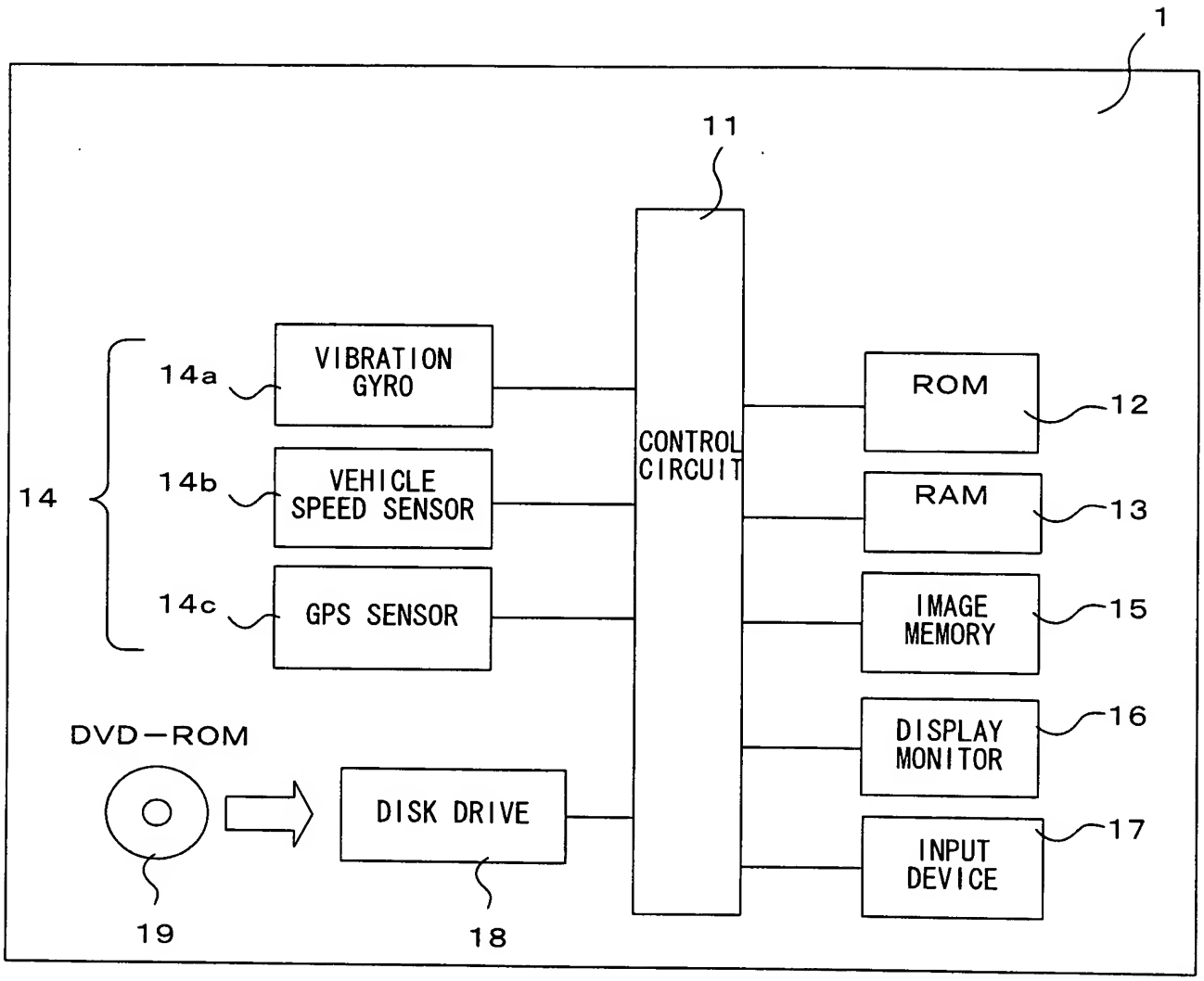

1
11
14
14a
VIBRATION GYRO
14b
VEHICLE SPEED SENSOR
14c
GPS SENSOR
CONTROL CIRCUIT
ROM
12
RAM
13
IMAGE MEMORY
15
DISPLAY MONITOR
16
INPUT DEVICE
17
DVD−ROM
DISK DRIVE
19
18

FIG. 2

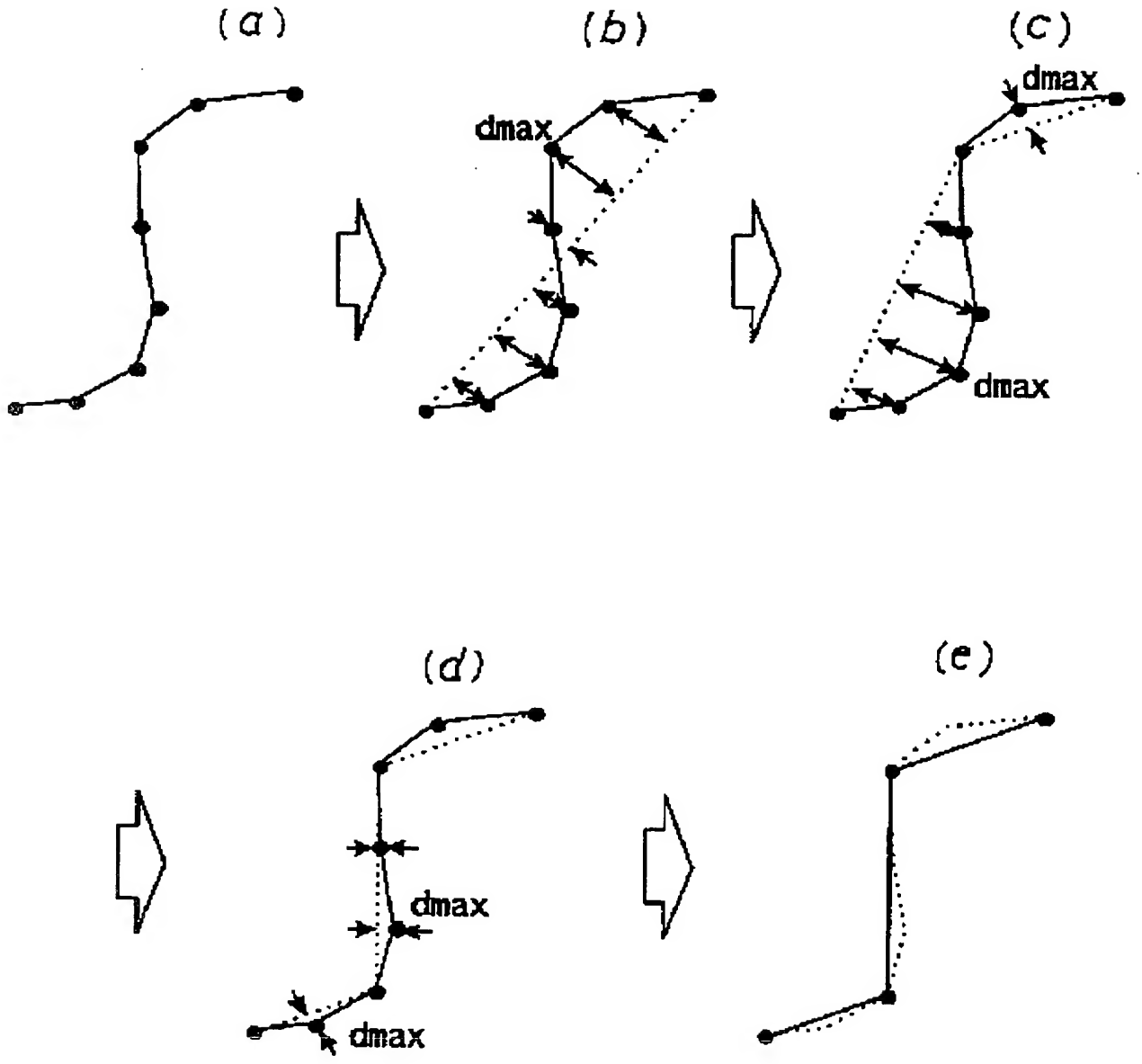


FIG. 3

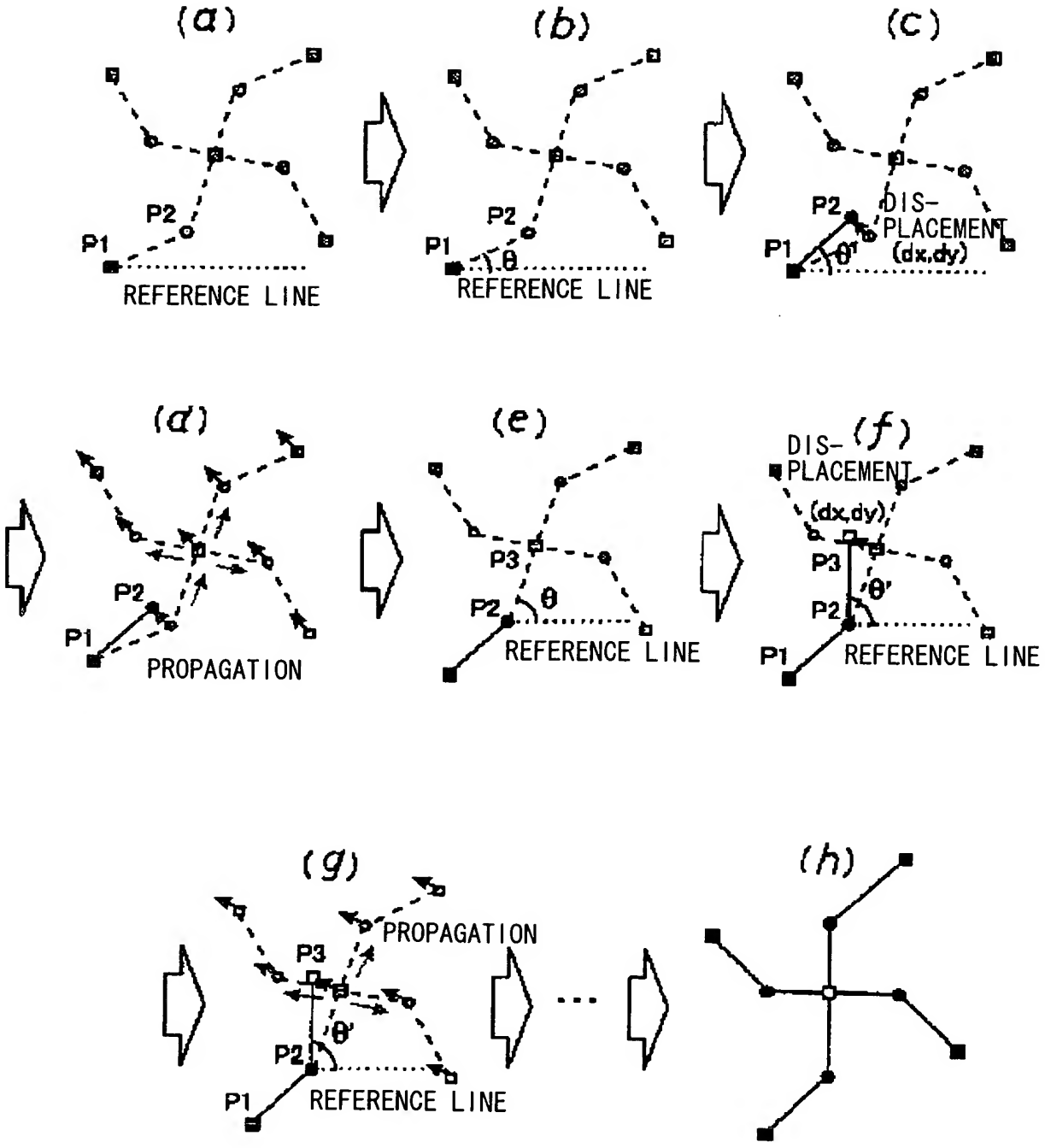

(a)
P1
P2
REFERENCE LINE
(b)
P1
P2
θ
REFERENCE LINE
(c)
P1
P2
θ'
DIS-
PLACEMENT
(dx,dy)
(d)
P1
P2
PROPAGATION
(e)
P2
P3
θ
REFERENCE LINE
(f)
DIS-
PLACEMENT
(dx,dy)
P1
P2
P3
θ'
REFERENCE LINE
(g)
PROPAGATION
P1
P2
P3
θ'
REFERENCE LINE
(h)

FIG. 4

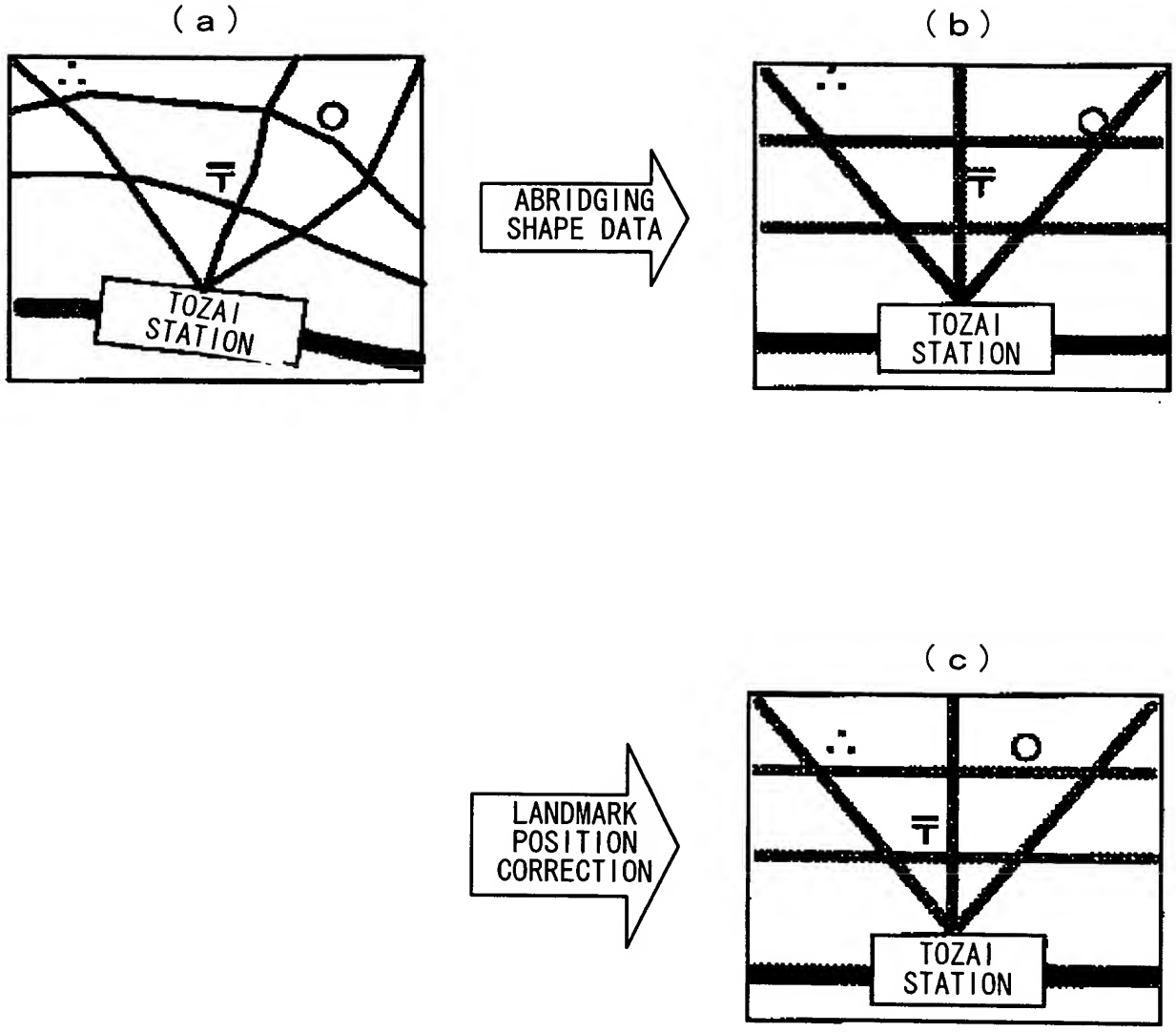
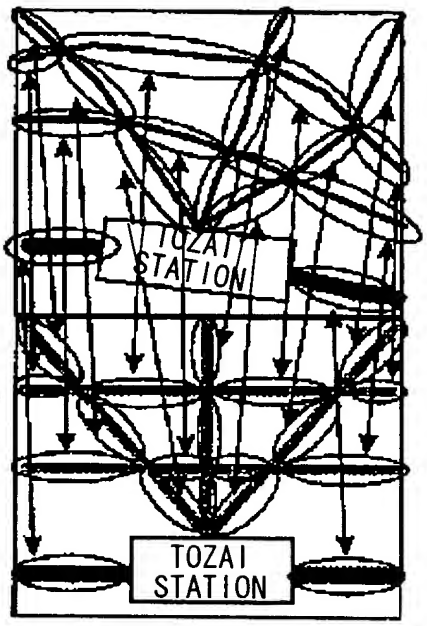

(a)
TOZAI STATION
ABRIDGING SHAPE DATA
(b)
TOZAI STATION
LANDMARK POSITION CORRECTION
(c)
TOZAI STATION

FIG. 5

(a)



(b)

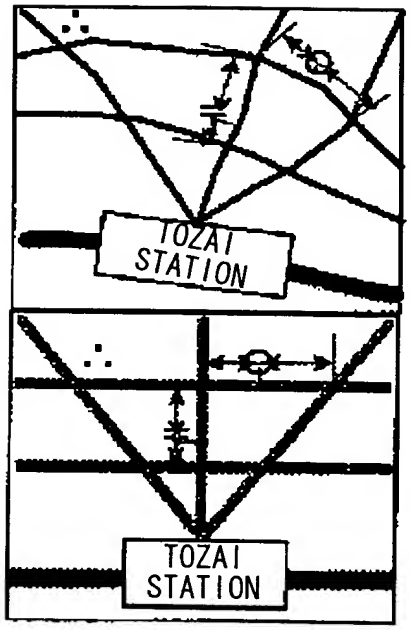
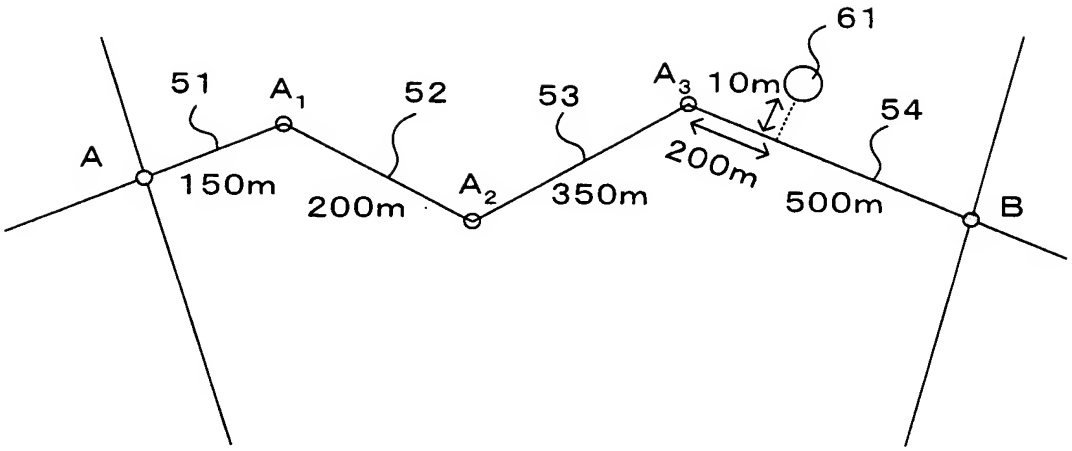
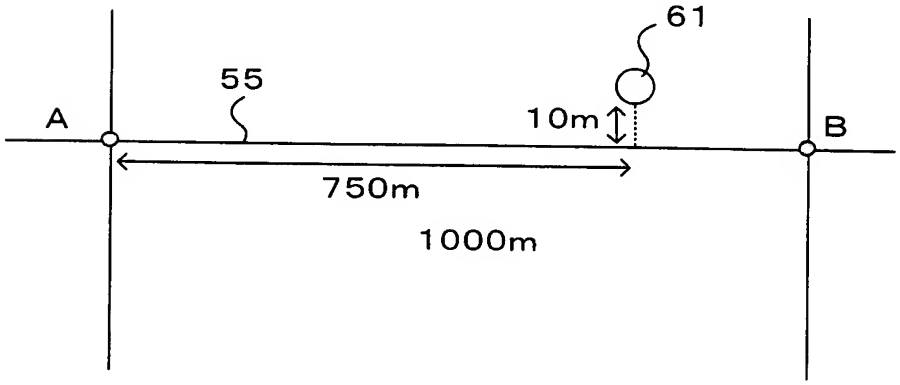


FIG. 6


61
51
A1
52
53
A3
10m
54
A
150m
200m
A2
350m
200m
500m
B

(a)


61
55
A
10m
B
750m
1000m

(b)

FIG. 7

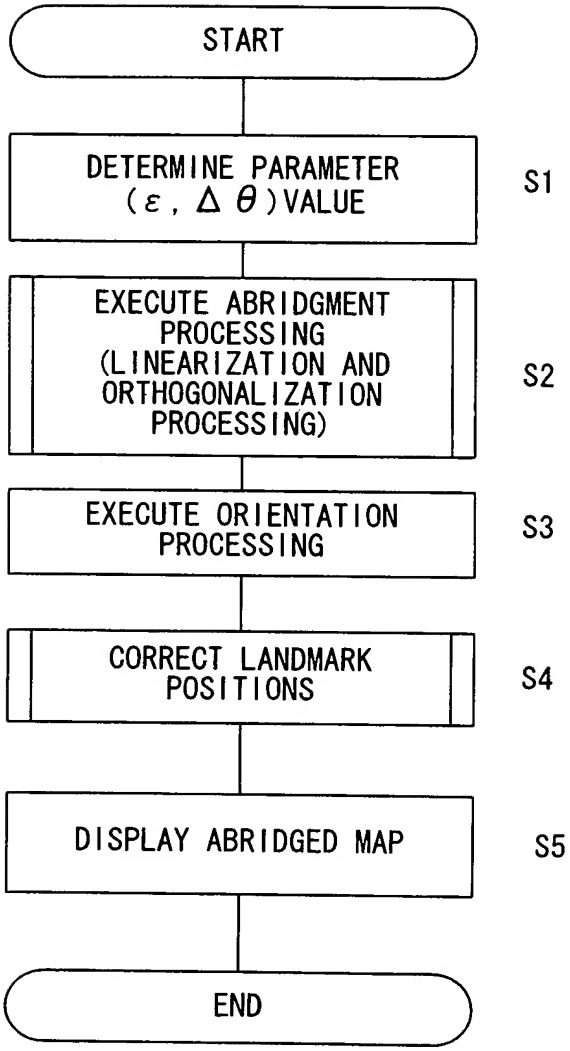
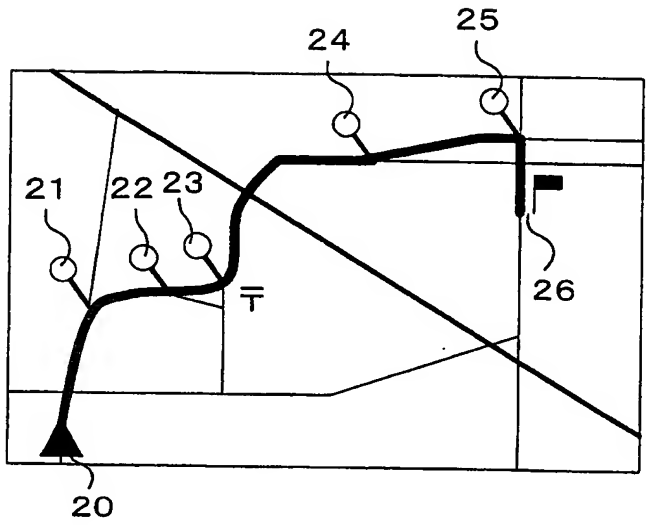
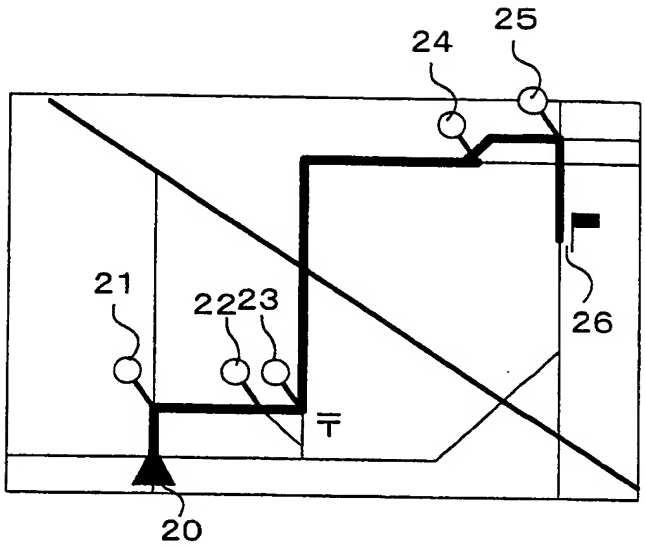

START
DETERMINE PARAMETER (ε, Δθ) VALUE
S1
EXECUTE ABRIDGMENT PROCESSING (LINEARIZATION AND ORTHOGONALIZATION PROCESSING)
S2
EXECUTE ORIENTATION PROCESSING
S3
CORRECT LANDMARK POSITIONS
S4
DISPLAY ABRIDGED MAP
S5
END

FIG.8

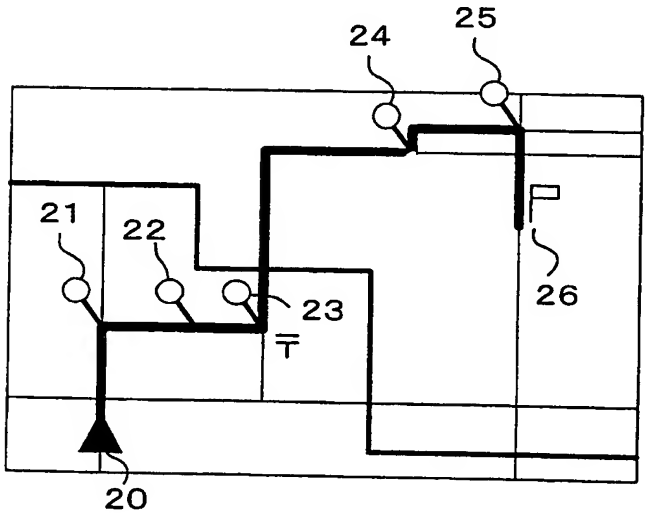
WIDE-AREA MAP DISPLAY



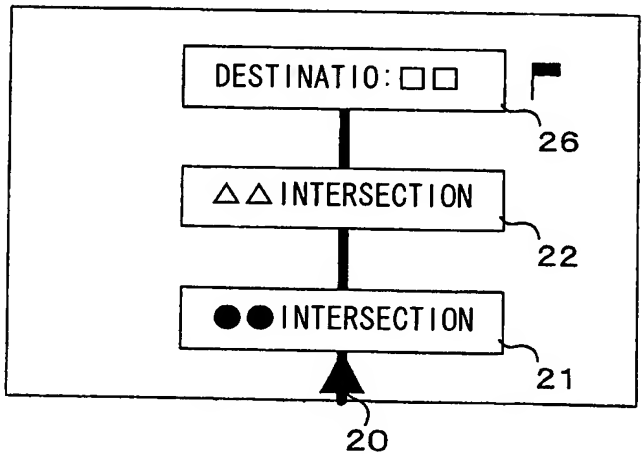
(a) ABRIDGMENT FACTOR 0 (INITIAL MAP)



(b) ABRIDGMENT FACTOR 1 ($\Delta\theta = 45°$)



(c) ABRIDGMENT FACTOR 2 ($\Delta\theta = 90°$)



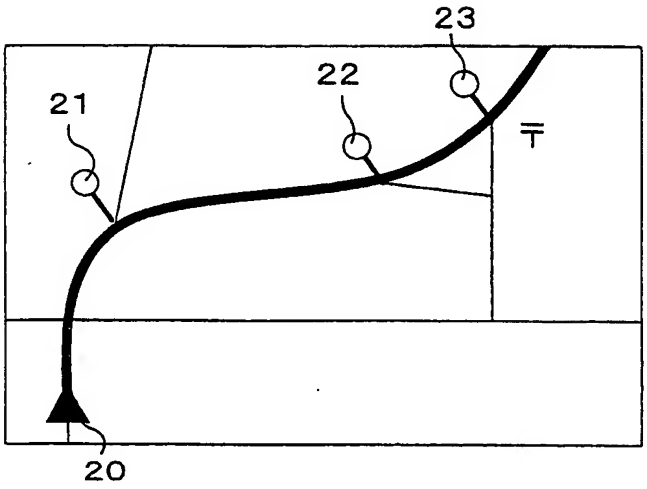
(d) ABRIDGMENT FACTOR 3 ($\Delta\theta = 180°$)

GUIDANCE-REQUIRING INTERSECTION

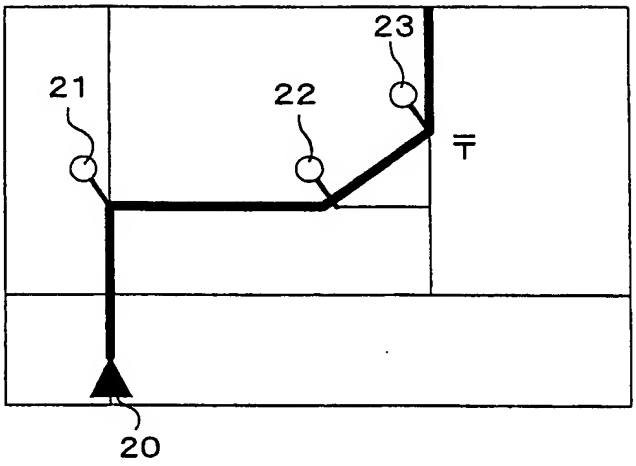
DESTINATION

FIG.9

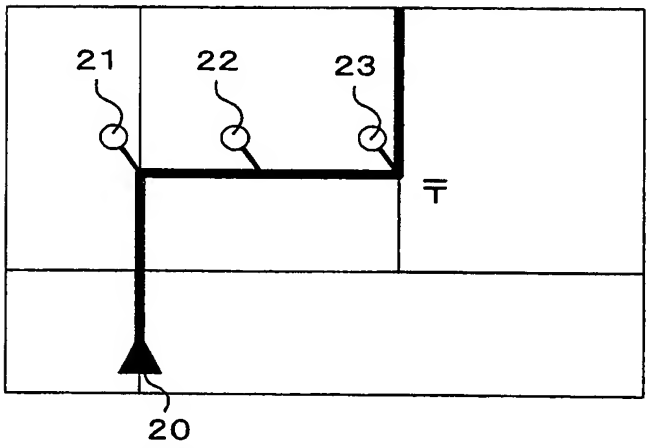
DETAILED MAP DISPLAY



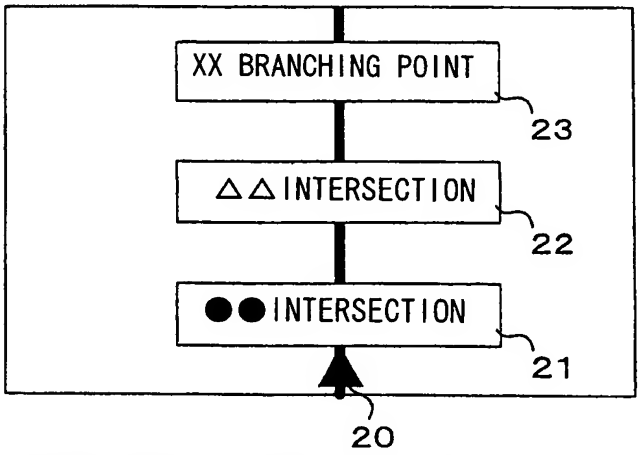
(a) ABRIDGMENT FACTOR 0 (INITIAL MAP)



(b) ABRIDGMENT FACTOR 1 ($\Delta\theta = 45°$)



(c) ABRIDGMENT FACTOR 2 ($\Delta\theta = 90°$)

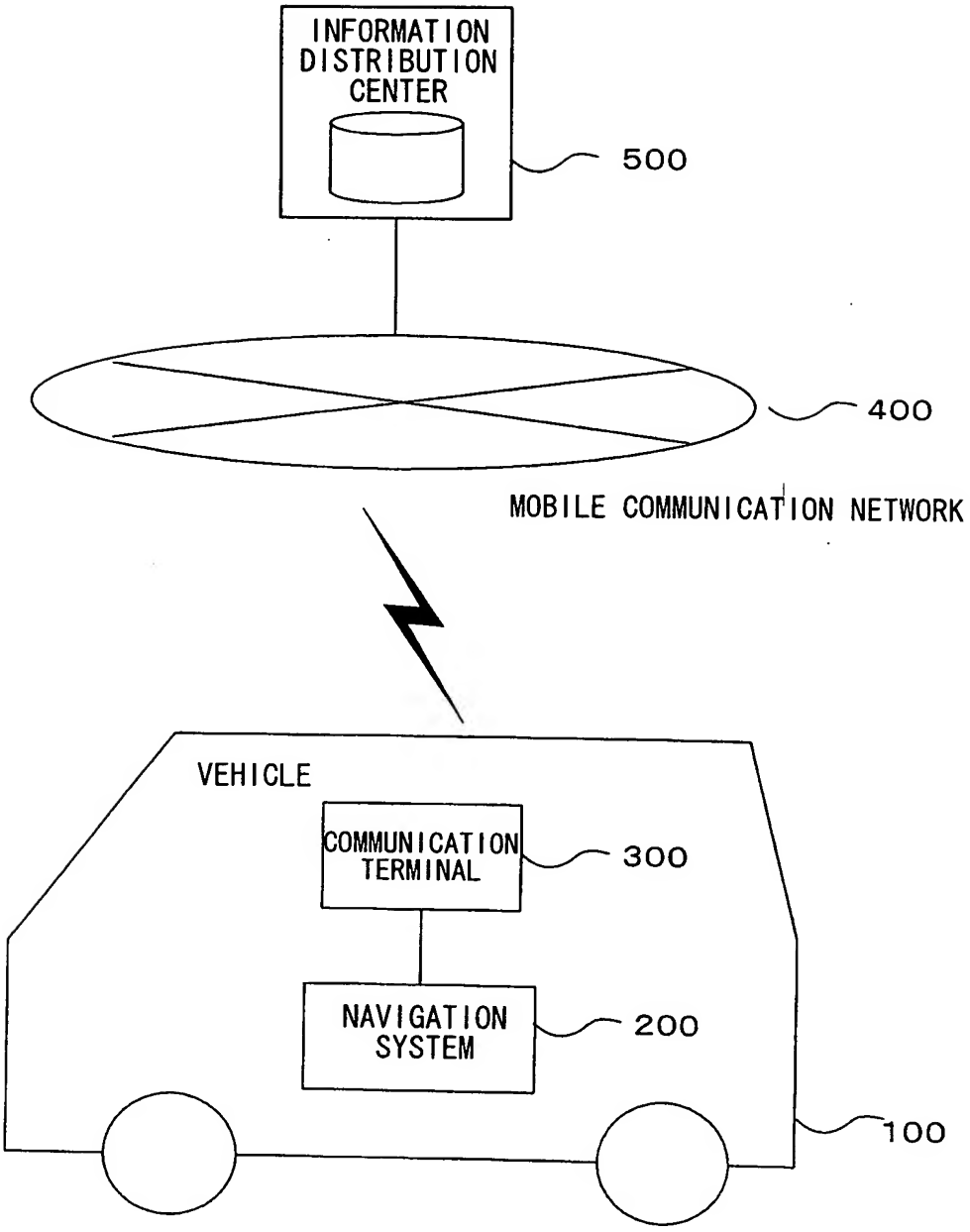


(d) ABRIDGMENT FACTOR 3 ($\Delta\theta = 180°$)

GUIDANCE-REQUIRING INTERSECTION

DESTINATION

FIG.10


INFORMATION DISTRIBUTION CENTER
500
400
MOBILE COMMUNICATION NETWORK
VEHICLE
COMMUNICATION TERMINAL
300
NAVIGATION SYSTEM
200
100

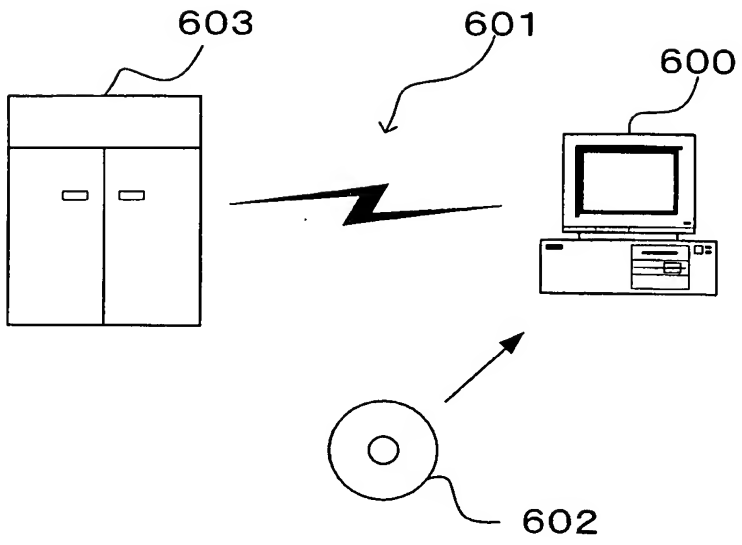



FIG.11